

CLAIMS

1. An active matrix electroluminescent display device comprising an
5 array of pixels(10), each pixel comprising:
an electroluminescent display element (20);
a drive transistor (22) for driving a current through the display element;
a storage capacitor (24) for storing a voltage to be used for addressing
the drive transistor;
10 a discharge photosensitive element (34) for discharging the storage
capacitor in dependence on the light output of the display element; and
a further photosensitive element (40) which is shielded from light
emitted by the display element (20) while being exposed to light from other
directions, and which is connected so as to cancel photocurrents produced in
15 the discharge photosensitive element (34) by light from the other directions.
2. A display device according to Claim 1, wherein the drive
transistor (22) is connected between a power supply line (32) and the display
element.
- 20 3. A display device according to Claim 2, wherein the discharge
photosensitive element (34) is connected in parallel with the storage capacitor
(24) between the power supply line (32) and the gate of the drive transistor
(22), and wherein the further photosensitive element (40) is connected in
25 series with the discharge photosensitive element between the gate of the drive
transistor and a reference potential (42).
4. A display device according to Claim 3, wherein the reference
potential is provided by a reference potential line (42) shared by other pixels.
- 30 5. A display device according to Claim 4, wherein the pixels (10)
are arranged in rows and columns with each row of pixels having a respective

row address conductor (12) via which the row of pixels is selected in a row address phase, and wherein the pixels of a row share a respective reference potential line (42), and wherein the reference potential line associated with a row of pixels comprises a row address conductor (12) associated with an adjacent row of pixels.

6. A display device according to any one of the preceding claims, wherein the discharge photosensitive element (34) and the further photosensitive element (40) comprise photodiodes.

7. A display device according to any one of Claims 1 to 5, wherein the discharge photosensitive element and the further photosensitive element comprise diode-connected transistors.

8. A display device according to any one of the preceding claims, wherein the pixel further includes an address transistor (26) connected between an input signal line (14) and an input to the pixel coupled to a node between the storage capacitor (24) and the gate of the drive transistor (22).

9. A display device according to any one of the preceding claims, wherein the device comprises a substrate (50), active matrix circuitry (54) comprising the pixel drive transistors, storage capacitors and photosensitive elements overlying the substrate, and wherein the pixel display elements comprise an electroluminescent layer (55) overlying the active matrix circuitry.

10. A display device according to Claim 9, wherein the discharge photosensitive element (34) and the further photosensitive element (40) in each pixel are arranged close together.

11. A display device according to Claim 9 or Claim 10, wherein the pixel display elements include a transparent conductive electrode layer (35) between the electroluminescent layer and the active matrix circuitry, wherein a

light shield (44) is arranged in each pixel between the further photosensitive element (40) and the overlying electroluminescent layer to shield the further photosensitive element from light directly from the electroluminescent layer, and wherein the discharge photosensitive element (34) is exposed to light
5 generated in the overlying electroluminescent layer.

12. A display device according to Claim 11, wherein the pixel display elements include a light opaque electrode layer (56) at the side of the electroluminescent layer remote from the active matrix circuitry.

10

13. A display device according to Claim 11, wherein the pixel display elements include a second transparent electrode layer (56) at the side of the electroluminescent layer remote from the active matrix circuitry, and wherein a further light shield (58) is arranged on the second transparent electrode layer
15 and overlying the discharge photosensitive element (34) of a pixel.